



Global Engineering Scientific Solutions

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Curriculum Vitae

Farhad Booeshaghi, Ph.D., P.E.

Professional engineer specializing in failure analysis, product design, manufacturing and safety-related issues, vehicular-accident reconstruction, occupant kinematics, and injury causation.

EDUCATION

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- | | |
|-------------|--|
| 2005 | Certification in Biomedical Engineering
University of Florida, Gainesville, FL |
| 1997 | Doctor of Philosophy in Mechanical Engineering
Concentration: Mechanics and Materials
Florida State University, Tallahassee, FL |
| 1987 | Master of Science in Mechanical Engineering
Concentration: Dynamics and Controls
University of Alabama, Tuscaloosa, AL |
| 1984 | Bachelor of Science in Mechanical Engineering
University of Alabama, Tuscaloosa AL |

PROFESSIONAL EXPERIENCE

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- | | |
|-----------------------|---|
| 2007 – Present | Global Engineering & Scientific Solutions, LLC, a/k/a GESS
Tallahassee, FL
Consulting Engineer/Managing Member |
| 2007 | BEC Consulting, LLC, Tallahassee, FL
(Formerly Benedict Engineering Company, Tallahassee, FL)
Consulting Engineer/General Manager |
| 1998 to 2006 | Benedict Engineering Company, Tallahassee, FL
Consulting Engineer/Engineering Team Leader |
| 1992 to 1997 | Benedict Engineering Company, Tallahassee, FL
Consulting Engineer – Part Time |



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1999 to present	FAMU-FSU College of Engineering, Tallahassee, FL Adjunct Professor Courses taught: Design Methods in Product Design and Manufacturing, Safety Engineering, Ergonomics and Human Factors Engineering, and Nanotechnology
1992 to 1998	FAMU-FSU College of Engineering, Tallahassee, FL
1997 to 1998	Post-Doctoral Research Associate – National High Magnetic Field Laboratory
1994 to 1997	Research Assistant
1992 to 1994	Graduate Teaching Assistant
1995 to 1997	Tallahassee Community College, Tallahassee, FL Math and Science Instructor
1986 to 1991	University of Alabama, Tuscaloosa, AL
1987 to 1991	Engineering and Mathematics Instructor
1986 to 1987	Graduate Teaching Assistant
1984 to 1986	Rochester Products/Division of General Motors University of Alabama Mechanical Engineering Design Clinic, Tuscaloosa, AL Design/Maintenance Engineer

LICENSES, REGISTRATIONS & CERTIFICATIONS

No. 53905	State of Florida Professional Engineer
No. 24561	State of Alabama Professional Engineer
No. 31784	State of California Professional Engineer
No. 24486	State of South Carolina Professional Engineer
ACTAR No. 1016	Accreditation: Commission for Traffic Accident Reconstruction
No. 8819-3783	Certified Fire and Explosion Investigator (CFEI)
No. 8819-3783V	Certified Vehicle Fire Investigator (CVFI)
OSHA 29 CFR 1910.178	Certified Forklift Operator
No. R2090	Certified Radon Measurement Specialist
No. R2096	Certified Radon Mitigation Specialist
No. CGC1517851	State of Florida Certified General Contractor in Construction

PROFESSIONAL ASSOCIATIONS

- Accreditation Board for Engineering and Technology, Inc. (ABET)
- American Society for Engineering Education (ASEE)
- American Society of Mechanical Engineers (ASME)
- American Society of Safety Engineers (ASSE)

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- American Society for Testing and Materials (ASTM)
Committees: ASTM G01, Corrosion of Metals, and ASTM E30, Forensic Sciences
- American Society for Materials (ASM)
- Florida Engineering Society (FES)
- National Association of Fire Investigators (NAFI)
- National Society of Professional Engineers (NSPE)
- Phi Kappa Phi Honor Society
- The Minerals, Metals & Materials Society (TMS)
- Society of Automotive Engineers (SAE)
- Tau Beta Pi Engineering Honor Society (NES)

WORK EXPERIENCE/COURSEWORK

October 2008	Evaluator, Mechanical Engineering Baccalaureate Program, New York City College of Technology, New York, NY
August 2008	Florida Radon Certification Training, RadaLink, Inc., Ocala, FL
March 2008	Florida Building Codes Course, Sponsored by the Florida Building Commission
September 2007	Evaluator, Mechanical Engineering Technology Baccalaureate Program, University of Hartford, Hartford, CT
October 2006	Evaluator, Mechanical Engineering Technology, Oklahoma State University, Stillwater, OK
September 2005	Certified Vehicle Fire Investigator Certification Program, Sarasota, FL
August 2004	“Applications of Nano Technology in Vehicle Design” Florida State University, Tallahassee, FL
July 2004	“Human Factors for Transportation Engineers” Florida Transportation Technology Transfer (T ²) Center, Gainesville, FL
July 2004	“PC-Crash Advanced Training Workshop” Macinnis Engineering Assoc. LTD., Vancouver, BC
April 2004	“Analysis of Collisions Involving Pedestrians or Bicyclists” Collision Safety Institute, Inc., Tallahassee, FL

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September 2003	“Crash Data Retrieval System Operator” Collision Safety Institute, Inc., Tallahassee, FL
February 2003	“Comprehensive Course in Auger Boring Technology” Michigan State University, Lansing, MI
October 2002	Full Day Clinical Shadowing, Dr. Andrew Wong, Orthopedic Surgeon Tallahassee Orthopedic Clinic, Tallahassee, FL
October 2002	Clinical Perceptorship, Total Knee Revision Surgery Tallahassee Memorial Hospital, Tallahassee, FL
July 2002	“General Industry Safety and Health,” Course No. 700003537 OSHA
April 2001	Regional Administration Conference ASME 2001 “Heating Boilers – Construction, Care and Operation” ASME, Sections IV and VI, Tallahassee, FL
September 2000	“Ergonomic Design Guidelines for Engineers” Society of Manufacturing Engineers
August 2000	Professional Leadership Seminar ASME
March 2000	“Commercial Vehicle Inspection and Collision Investigation” Texas A&M University, Tallahassee, FL
2000	“Advanced Commercial Vehicle Inspection and Collision Investigation” Texas A&M University, Tallahassee, FL
February 2000	OSHA Compliance & Workplace Safety Seminar OSHA
March 1999	Truck Safety Inspection Program, Safety Management Councils Sponsored by Florida/Georgia Trucking Associations
June 1999	“HVE-2D Crash Analysis Training” Northwestern University Traffic Institute, Tallahassee, FL
May 1998	“Traffic Accident Reconstruction” Northwestern University Traffic Institute, Tallahassee, FL
April 1998	“Using PhotoShop” Rockhurst College Continuing Education Center, Tallahassee, FL

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1996 to 1997 HAZCOM Training
National High Magnetic Field Laboratory, Tallahassee, FL

PUBLICATIONS

Booeshaghi, Farhad, "Ergonomics Hazards and Repetitive Strain (EHRS) – Chapter: Best Practices." *American Society of Safety Engineers (ASSE) – Safety Professional's Handbook*, 2008.

Booeshaghi, Farhad, and H. Garmestani. "On the Application of Load Relaxation in Characterizing Superplastic Al-Li 8090 Over Large Strain-Rate Regimes." *Scripta Materialia* 40 (1999): 509-516. Booeshaghi, Farhad. "Basic Principles of Machine Guarding: an Engineer's Perspective." *The Brief* October 1998.

Booeshaghi, Farhad, and H. Garmestani. and Kalu, P. "Micromechanical Investigation and Phenomenological Modeling of AL-8090 Superplastic Materials." *Materials Science Forum* 243-245 (1997): 569-574.

Booeshaghi, Farhad, H. Garmestani, and P. Kalu. "Phenomenological Modeling of Superplasticity." Proceeding of TMS Annual Meeting, Lightweight Alloys for Aerospace Application IV, Orlando, FL, February 1997.

Booeshaghi, Farhad, and H. Garmestani. "On the Existence of Threshold Stress." *Scripta Materialia* 38 (1) (1997): 89-94

Booeshaghi, Farhad. "Phenomenological Modeling Based on Micromechanical Characterization of Superplastic Materials." Ph.D. diss., Florida State University, 1997.

Garmestani, H., P. Hollis, and Farhad Booeshaghi. *Experimental Methods in Solid Mechanics*. Laboratory Manual. Tallahassee: College of Engineering Mechanical Engineering Department, Florida State University, 1996

PRESENTATIONS

Booeshaghi, Farhad. "Safety Engineering – What happened? How could it have been avoided?" FAMU-FSU College of Engineering. Tallahassee, FL, November 2001

Booeshaghi, Farhad. "Accident Documentation." Lecture given at Crawford & Company. Tallahassee, FL, August 2001.

Booeshaghi, Farhad. "Animation-Fact or Fiction." Lecture given at Alabama Trial Lawyers Association. Mobile, AL, 2001.

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PATENTS

Booesaghgi, Farhad, Charles E. Benedict, Stephen R. Corbett, Christian A. Yates, et al. 2002. "Pivotal Guards for Power Hand Tools with Rotating Discs." U.S. Patent 6,699,114, filed April 26, 2002 and issued March 2, 2004.

Benedict Engineering Company. 2004. "Safety Guard Stop for Band Saws." U.S. Patent Application 10/389,809, Notice of Allowance Oct. 8, 2004.

RESEARCH PROJECTS

- 2002 Principal Research Investigator on a proposal submitted to the National Highway Traffic Safety Administration (NHTSA), titled: "Software to Calculate Relationships of Automotive Crash Forces to Specific Occupant Injuries in Real-World Crashes"
- 1992 to 1997 Research Investigator on projects initiated by: National Aeronautics and Space Administration (NASA), Florida Department of Transportation (FLDOT), National High Magnetic Field Laboratory (NHMFL), and Department of Energy (DOE)

HONORS AND AWARDS

- 2003 to 2004 Chairman, ASME, Tallahassee Subsection
- 2002 to 2003 Program Chair, ASME Tallahassee Section
- 2002 Engineering Text Book Reviewer, *Methods, Standards and Work Design* McGraw-Hill Companies, Burr Ridge, IL
- 2001 to 2002 Chairman, ASME, Tallahassee Subsection
- 2001 to present Society of Automotive Engineers (SAE) Technical Paper Reviewer
- 1995 to 1996 Teaching Associate of the Year, FAMU-FSU College of Engineering
- 1995 to 1996 Featured Speaker, Graduate International Student Orientations, Florida State University
- 1996 Featured Speaker, Chemical Engineering Department, FAMU-FSU College of Engineering
- 1990 Award for Academic Achievement by an International Student, University of Alabama
- 1990 Featured Speaker, Orientation Program for New Graduate Teaching Assistants, University of Alabama

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REPRESENTATIVE PROJECTS

Vehicular:

- Determination of dynamics of motion, occupant kinematics, injury causation, crash momentum, and energy dissipated in vehicular accidents
- Performance of seat belt analysis and testing
- Consultation and design assistance in the instrumentation and setup of tests to evaluate and analyze vehicular characteristics in accidents
- Analysis of roadway conditions, including compliance with national safety standards

Tractor-Trailer:

- Tractor-trailer inspection with regard to annual inspection timeliness, driver's log, and conformance to Federal Motor Carrier Safety Regulations
- Commercial vehicle brake-system analysis, concentrating on push rods, slack adjusters, and air pressure to determine attempted braking force v. actual braking force
- Tractor-trailer/automobile accident reconstruction, including underride, visibility, and intersection collisions

Pedestrian:

- Pedestrian-to-driver visibility determination, particularly at night
- Pedestrian walking speed and vehicle-impact speed calculations based on physical evidence, including damage to the vehicle and the final-rest position of the pedestrian
- Initial point-of-impact determination for the pedestrian to the vehicle, based on damage to the vehicle and injury to the pedestrian
- Nighttime reenactment to determine pedestrian visibility to the driver

Motorcycle:

- Accident reconstruction involving motorcycles and automobiles
- Bulb-filament analysis to determine headlight illumination prior to collision
- Speed calculation of motorcycle prior to braking based on perception-reaction, length of skid, and damage to motorcycle

Railroad:

- Sight-distance triangle determination based on AASHTO recommendations for safe grade crossings
- MUTCD-recommendations comparison to rate the use and placement of warning signs at highway grade crossings
- Time-speed distance reconstructions in locomotive v. automobile collisions

Construction/Industrial:

- Reconstruction of the following types of industrial accidents: chemical releases, slip, trip and falls, tie downs, electrocutions, electrical fires, explosions, hole openings
- Analysis of incidents based on OSHA compliance specifications

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- Accident analysis involving the following: pools and water sports, amusement-park rides, lumber processing, sewer lines, woodworking, textiles, mining, refinery, bakery, and industrial equipment used in construction, and manufacturing settings

Product Analysis and Design:

- Investigation of accidents related to product design, manufacturing, assembly maintenance, service, and repair in industrial and residential settings
- Failure analysis of: grinders, grinder disks, saws, saw blades, lathes, mills, shapers, presses, wenchers, conveyors, jacks, bailers, compressors, automatic doors, cranes, motor homes, forklifts, bulldozers, backhoes, scaffolding and catwalks, industrial wash drums, commercial washing machines, man-lifts, manholes, platforms, elevators, escalators, ladders, augurs, tractor-trailer accessories, seat covers, gas nozzles, asphalt machines, packaging equipment, chairs, tables, carpet-weaving and carpet-winding machines, electric motors, control systems, valves, tankers, storage tanks, drums, high pressure water blaster, protective vests, tents, boilers, chicken processing machines, stoves and ovens, bread and bagel making machines, hydraulic and pneumatic cylinders, large scale bottle fillers, smoke detectors, blinds, toys, ballast-cleaning machines, trash compactors, and sanitary equipments.
- Design of hand and finger exercise equipment for people with arthritic conditions
- Determination of the mechanical characteristics of aluminum-lithium alloys utilizing bi-axial mechanical testing, optical microscopy, and x-ray diffraction techniques
- Utilization of ASTM standard mechanical tests in product analyses, including: load relaxation test, strain-rate change test, constant strain-rate test, uni-axial tension test, compression test, three and four point bending tests, high strain-rate impact test, torsion test, low and high cycle fatigue test, biaxial loading test, micro-hardness test
- Testing and determination of fatigue-life mechanical properties of a copper-silver alloy structural conductor used in the World Record 33 Tesla Resistive Magnet
- Determination of the existence of threshold stress in region I of superplastic Al-7475 and Al-Li 8090Development of a new model to characterize inelastic deformation of superplastic materials for all ranges of temperature and strain rateCharacterization of materials, e.g., aluminum alloys, titanium alloys, metal matrix composites, fiber reinforced carbon-carbon composites, fiber reinforced concrete
- Performance of micro-characterization using Electron Backscatter Pattern (EBSP) in conjunction with Orientation Imaging Microscopy (OIM), x-ray diffraction and texture analysis, microtexture and mesotexture analysis, and optical microscopy
- Design and manufacture assistance of bi-axial testing fixtures
- Design and fabrication of high-temperature tensile grips
- Analysis of safety issues during the design, manufacture, assembly, and installation of BEC's NuShore Beach Reclamation System and the control-system design and manufacture for BEC's U.S. Navy material-handling system
- Design and patent of safe guarding mechanisms for band saw, sander-grinder, and router

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Process Development:

- Layout design and assistance in the setup of the solid mechanics laboratory FAMU-FSU College of Engineering Assistance in the development and implementation of educational mechanical-testing methods
- Analysis of daily technical problems, determination of solution, and implementation of a preventive maintenance program at the Rochester Products Carburetor Assembly Plant